

**A NEW SPECIES OF MICROPTEROUS DAMSEL BUG
(HETEROPTERA: NABIDAE) FROM NUKU HIVA, MARQUESAS ISLANDS**

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Abstract.—A new species of micropterous damsel bug, *Nabis nukuhiva*, is described from the summit area of Nuku Hiva in the Marquesas Islands, and compared to other endemic Marquesan Nabidae. Illustrations of the male paramere, male endosoma, and female dorsal habitus are provided.

Key Words: Heteroptera, Nabidae, Marquesas Islands

As discussed previously (Polhemus 2000), the isolated islands of the Eastern Pacific are notable for their paucity of Reduviidae, and apparently compensatory local radiations of Nabidae. Although the nabid fauna of the Hawaiian Islands has received considerable attention over the last century, with 27 endemic species now described (Polhemus 1999), the similarly interesting nabid biota of the Marquesas Islands has been far less thoroughly investigated. The only previous Heteroptera collections of any significance from these islands were made by the Pacific Entomological Survey in the 1930s, with the Nabidae sent to E. P. Van Duzee in California, who described the four endemic *Nabis* species recorded up to the present time (Van Duzee 1932, 1934). Limited visits were also made by individual researchers from the Bishop Museum in 1977, 1984, and 1988, but these resulted in only limited collections of Heteroptera. More recently, a pair of joint Smithsonian/Bishop Museum expeditions to the Marquesas in 1999 and 2001 reached the islands of Nuku Hiva, Ua Huka, Ua Pou, Hiva Oa, Tahuata, Mohotane, and Fatu Hiva, obtaining extensive Heteroptera col-

lections including a new endemic micropterous *Nabis* species from the cloud forests of upland Nuku Hiva, described herein. Examples of still other new nabid species from both the Marquesas and Society islands are at hand, but many of them are represented by old specimens in such poor condition that it seems best to defer their description in the hope that additional fresh material may accrue from future survey work.

All measurements are given in millimeters; CL numbers following locality citations refer to collection locality numbers used to cross reference specimens, photographs, and field notes. Material depository codons are explained in the Acknowledgments section.

Nabis nukuhiva Polhemus, new species
(Figs. 1, 2, 4)

Description.—*Micropterous male:* General coloration of living specimens pale yellowish brown to orange brown (often fading to tan in dried specimens), with scattered darker brown markings dorsally on head, thorax and abdomen; legs maculate with darker brown; limited markings along

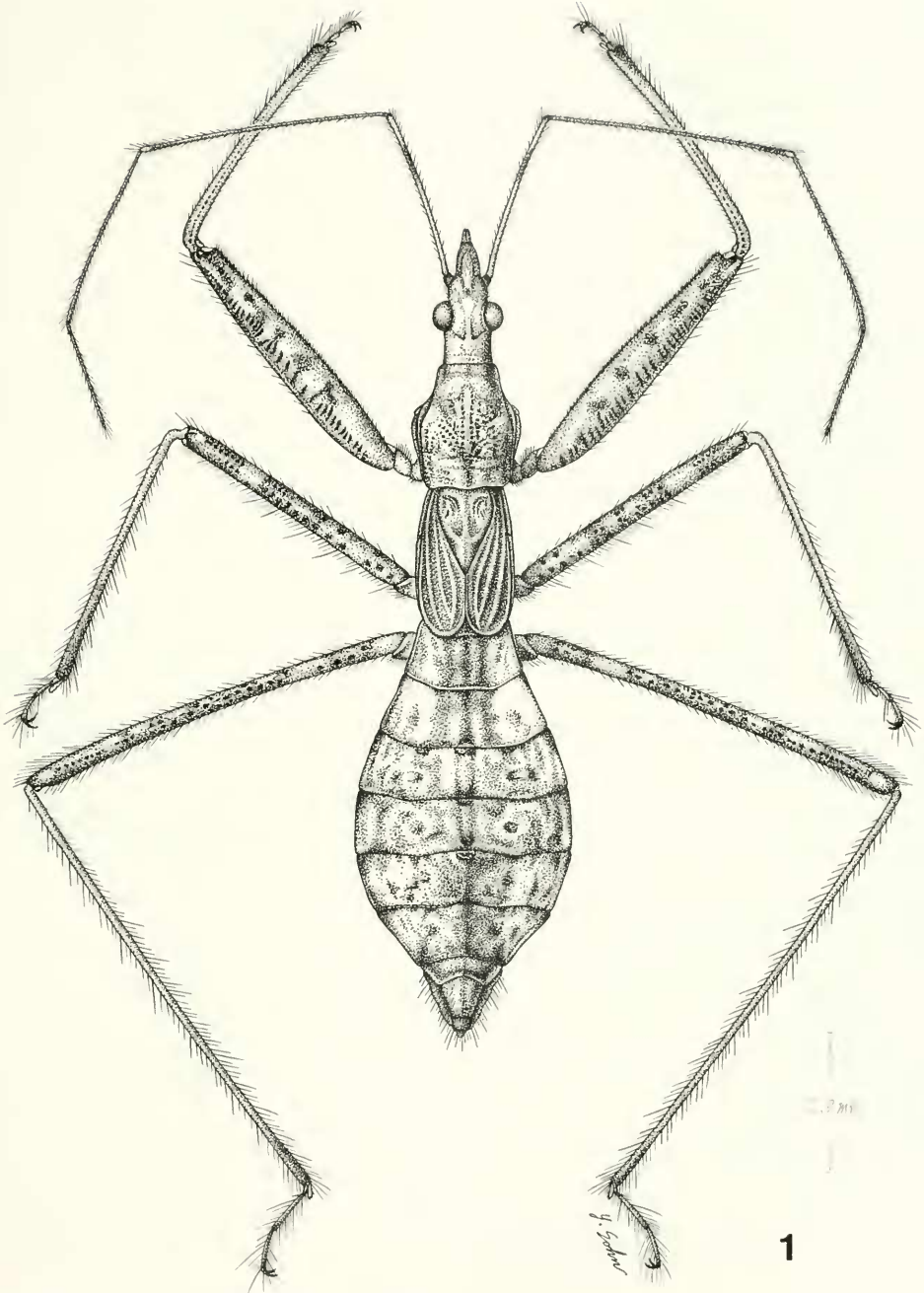


Fig. 1. *Nabis nukuhiva*, female, dorsal habitus.

central section of abdominal dorsum bright red.

Length 9.95 mm, maximum width (across abdomen) 2.25 mm.

Head elongate, well produced ahead of

eyes, length/width = 1.55/0.95, bearing pale, semi-recumbent setae; width of vertex $1.8\times$ the dorsal width of an eye (0.45/0.25); length of preocular portion of head approximately $1.9\times$ the dorsal length of an eye

(0.70/0.37); length of postocular portion of head $1.1\times$ the dorsal length of an eye (0.42/0.37); ocelli absent; length of antennal segments I–IV = 2.35/3.30/2.70/1.50; rostrum length 3.05, reaching to mesocoxae, lengths of segments I–IV = 0.25/1.25/1.10/0.45; coloration of head pale brown, with dark brown patches laterally behind eyes, tylus orange, posteriorly directed V-shaped brown marks present centrally at base of tylus and on frons; antenna dark yellowish brown to orange brown, segment II with a single dark brown annulation near apex, remaining segments unicolorous.

Pronotum narrow, anterior collar elongate, anterior lobe moderately swollen and tumescent, posterior lobe shorter than anterior lobe, with sides weakly convergent posteriorly; length/width = 1.60/1.20, bearing numerous very short, pale, recumbent setae; coloration pale yellowish to reddish brown, central tumescent section sparingly marked with dark brown maculations, anterior collar shallowly punctate, posterior lobe weakly rugulose, both bearing dark brown longitudinal midline stripe, this stripe becoming indistinct on central tumescent section.

Scutellum elongate, roughly triangular, length/width = 1.00/0.70, basal half weakly tumescent, set off from angulate posterior half by incipient ridges extending inward from lateral margins; surfaces of both sections bearing a few very short, pale, recumbent setae; coloration pale yellowish to reddish brown, a pair (1+1) of elongate dark brown patches present on basal half to either side of midline.

Hemelytra short, micropterous; hemelytron length 1.80, reaching to basal section of abdominal tergite I, bearing short, pale, recumbent setae; clavus evident throughout its length, venation of corium obscure, weakly suggested by remnants of cubital and radial veins, membrane present as tiny rounded flap folded slightly downward toward underlying tergites; coloration pale brown, veins yellowish to pale orange.

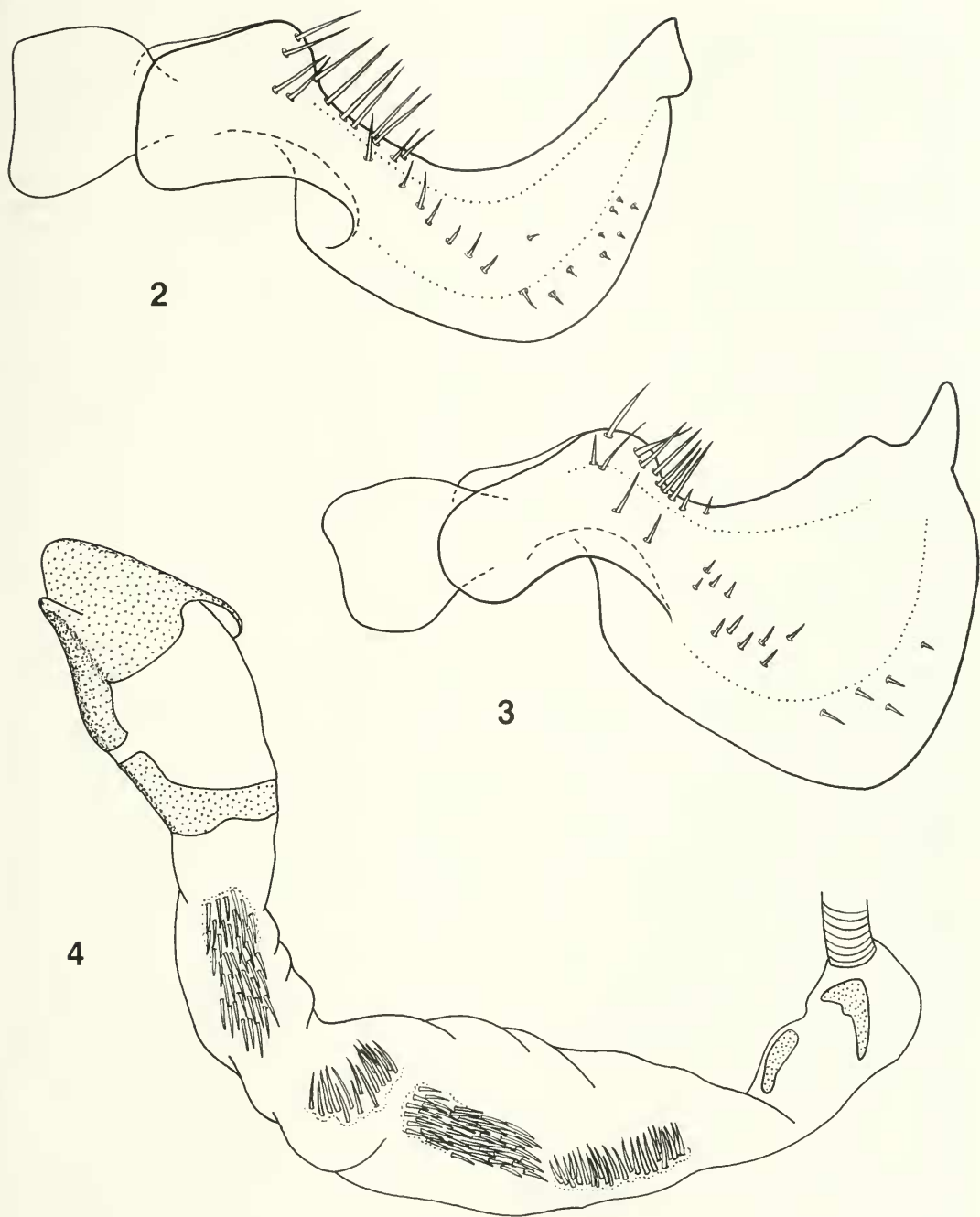
Legs elongate, with fore coxa approxi-

mately $1.80\times$ as long as thick (0.90/0.50); fore femur fusiform, over $6.60\times$ longer than wide (4.00/0.60), covered with numerous short, pale setae; fore tibia slender, widening at apex, inner margin bearing two parallel rows of about 50 tiny black teeth bordered by pale, erect setae, outer margins bearing semi-erect pale setae, these setae becoming longer distally; middle and hind femora, tibiae and tarsi slender, covered with short, pale, semi-erect setae, middle tibia with inner margin bearing two parallel rows of about 30 tiny black teeth on basal half; coloration of legs yellowish brown to pale orange with complex darker brown maculations on all femora; all tibiae unicolorous, lacking annulations or maculations, becoming slightly infuscated near tips; lengths of leg segments as follows: fore femur/tibia/tarsal 1/tarsal 2/tarsal 3 = 4.00/3.35/0.10/0.15/0.20; middle femur/tibia/tarsal 1/tarsal 2/tarsal 3 = 3.70/4.00/0.10/0.20/0.37; hind femur/tibia/tarsal 1/tarsal 2/tarsal 3 = 5.60/6.50/0.10/0.60/0.55.

Abdomen with segments I–IX exposed, lateral margins broadly arcuate, postero-medial portions of tergites lacking raised tumescences, tergites I–V dorsally concave, with lateral margins curved upward, tergite VI broadly raised centrally, tergites VII–IX narrowed, forming a box-like genital capsule; all tergites covered with scattered short, pale, recumbent setae; ground color of tergites yellowish brown to orange brown, broadly overlain with dark brown maculations and scattered small bright red markings, these markings darker and more dense along midline, anterolateral angles dark brown; lengths of exposed abdominal tergites I–VII = 0.90/0.85/0.75/0.70/0.65/0.75/0.20.

Ventral surface of head and thorax medium brown, paratergites along lateral abdomen dark blackish brown, abdominal ventrites pale yellowish, with irregular dark brown markings present along midline on abdominal ventrites I–VI; entire venter clothed with pale, recumbent setae.

Genitalia with distal section of paramere



Figs. 2-4. Micropterous *Nabis* species endemic to the Marquesas, male genitalic structures. 2, *N. nukuhiva*, paramere. 3, *N. longipes*, paramere. 4, *N. nukuhiva*, endosoma.

sickle-shaped, tip sharp and acute (Fig. 2); endosoma with two small basal sclerites, plus four clusters of long sclerotized spinules in distal section (Fig. 4).

Micropterous female: Similar to micropterous male in general structure and coloration with following exceptions: length 11.20 mm, maximum width (across abdo-

men) 3.00 mm; overall form slightly more robust than male, with abdomen more broadly expanded (Fig. 1); combined abdominal tergites VIII and IX roughly triangular, longitudinally raised medially to form a tube-like structure over upraised tip of retracted ovipositor; dark markings on dorsum of body and legs similar to those in male; venter with ventrolateral sections of abdominal segment VII not strongly swollen on either side of ovipositor sheath.

Etymology.—The name “nukuhiva” is a noun in apposition, and refers to the island of Nuku Hiva, to which this species is endemic.

Material examined.—Holotype, micropterous ♂: MARQUESAS ISLANDS, Nuku Hiva, cloud forest along crest of Tekau Ridge, E. of new road crossing, 1160–1220 m. (3800–4000 ft.), 8°51'39"S, 140°10'24"W, 21 October 1999, 10:00–15:00 hrs., CL 6007, D. A. and J. T. Polhemus (USNM). Paratypes (all micropterous): MARQUESAS ISLANDS, Nuku Hiva: 10 ♂, 6 ♀, same data as holotype (USNM, BPBM, MHNP); 3 ♂, 1 ♀, same data as holotype except 23–24 August 2001, D. A. and J. T. Polhemus (USNM); 1 ♂, N. side of Tekao Ridge, along old road, 1020 m. (3350 ft.), 8°51'35"S, 140°10'44"W, 24 August 2001, beaten from *Weinmannia parviflora*, D. A. & J. T. Polhemus (USNM); 1 ♀, Tapuaooa, 3000 ft., 1 June 1931, under dead leaves, Le Bronnec and H. Tauraa, Pacific Entomological Survey (BPBM).

Discussion.—Although four endemic species of *Nabis* have been previously described from the Marquesas (Van Duzee 1932, 1934), *Nabis nukuhiva* is only the second micropterous species discovered in the archipelago. The other, *N. longipes* Van Duzee, is also restricted to the cloud forest zone, occurring along the crest of Temetiu Ridge on the island of Hiva Oa; a similar pattern of habitat preference is also exhibited among micropterous *Nabis* species collected by the author in Hawaii and the Society Islands.

Nabis nukuhiva may be separated from

N. longipes by the following characters: in *N. nukuhiva* the margins of the posterior lobe of the pronotum are slightly convergent posteriorly (Fig. 1), while in *N. longipes* they are divergent posteriorly; the scutellum of *N. nukuhiva* is conspicuously elongate and shows an incipient division into anterior and posterior lobes (Fig. 1), while that of *N. longipes* is more evenly triangular and shows no such incipient transverse division; the ground color of *N. nukuhiva* ranges from straw yellow to pale orange brown, while the general coloration of *N. longipes* is distinctly dark reddish brown, with the reddish color predominating in living specimens; and finally the distal section of the male paramere of *N. nukuhiva* is relatively slender, curving, and sickle-shaped, while that of *N. longipes* is more massive and half-moon shaped (compare Figs. 2 and 3).

To date, three Marquesan *Nabis* species, *N. mumfordi* Van Duzee, *N. ancora* Van Duzee, and *N. nukuhiva*, have been dissected to evaluate the internal characters of the endosoma. All possess comb-like endosomal sclerites, a relatively unusual character state among Nabidae. Such endosomal combs are seen only in a few other groups, including the speciose endemic Hawaiian radiation in the subgenus *Milu* Kirkaldy, the eastern Palearctic subgenus *Reuteronabis* Kerzhner, and a few taxa in Australia and North America. This strongly suggests that such comblike sclerites may be a synapomorphy linking the insular Marquesan and Hawaiian nabid radiations as monophyletic sister clades, although this hypothesis has not yet been tested in the context of a broader-scale cladistic analysis. In *N. nukuhiva*, such endosomal sclerites appear to be highly modified into clusters of long spinules, notably different from the short-spined combs seen in the Hawaiian taxa and certain other Marquesan species; this character state, combined with the narrow pronotum and elongate scutellum, suggests that *N. nukuhiva* may represent a more divergent lineage within this putative clade.

The type series of *N. nukuhiva* was taken amid dense, low-stature cloud forest along the summit of Tekau Ridge, a high, narrow, elongate ridgeline that forms the crest of Nuku Hiva, representing a remnant section of the island's old outer caldera rim. Specimens were collected primarily by light pyrethrin fogging of moss mats growing on the trunks and branches of intertwined trees and shrubs along the extreme crest of the ridge; a few were also taken by beating vegetation. If *N. nukuhiva* is indeed confined to cloud forest environments, then its total range comprises a very limited strip of such vegetation remaining along the Tekau ridgeline. Adamson (1936) noted of this area "The high mountains above Aakapa are one of the richest regions for collecting in the Marquesas. Unfortunately it is one of the least accessible, being a day's journey on horseback from Taiohae, and nearly as much from Hakau. So far as I know, these mountains cannot be ascended from the north." This situation has now changed greatly with the construction of several new roads subsequent to the 1930s, but ironically these same roads that have provided access to this rich area for biologists have also brought increasing impact from human use, weeds, and feral ungulates, all of which threaten the integrity of this fragile ecosystem.

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